IN THE CLAIMS:

1. (Currently Amended) A magnetic resonance imaging method to produce successive magnetic resonance images wherein:

- a series of successive magnetic resonance signals is obtained by steady-state free precession imaging,
- successive sets of magnetic resonance signals in the series are acquired by successively scanning respective sets of points in k-space in an undersampled fashion,
- the magnetic resonance signals in the series are acquired in conjunction with an eddy-current reduction technique, and
- successive magnetic resonance images are reconstructed from the successive sets of magnetic resonance signals using a suitable reconstruction method.

2. (Original) A magnetic resonance imaging method as claimed in Claim 1, wherein the eddy-current reduction technique employs alternating sweep directions in sampling k-space.

3. (Currently Amended) A magnetic resonance imaging method as claimed in Claim 1 ~~Claims 1 or 2~~, wherein

- successive sets of magnetic resonance signals are acquired by successively scanning respective sets of points in k-space in an undersampled fashion such that the ensemble of successive sets cover the entire portion of k-space at full sampling density,
- successive updates of a training set of magnetic resonance signals are obtained from the magnetic resonance signals, either in the same scan or in a separate scan, by further acquisition of the central portion of k-space at full sampling density or with slight undersampling if multiple receiver antennae are used,
- the undersampled sets of magnetic resonance signals are successively updated by further undersampled scans of the entire k-space,
- a baseline image is optionally reconstructed from the training data and/or undersampled data, or from data acquired separately during time periods with little or no motion,
- a distribution of likelihood of changes in the successive magnetic resonance images is identified from the static reference image and/or the training data, in

the space spanned by geometrical space alone or by geometrical space and temporal frequency,

- successive magnetic resonance images are reconstructed from the respective sets of undersampled magnetic resonance signals on the basis of the identified distribution of likelihood of changes, and optionally the baseline image, and
- the magnetic resonance signals are optionally acquired by way of a receiver antennae system having a spatial sensitivity profile, and the successive magnetic resonance images are reconstructed from the respective sets of undersampled magnetic resonance signals on the additional and optional basis of the sensitivity profile of the receiver antennae.

4. (Currently Amended) A magnetic resonance imaging method as claimed in Claim 1 ~~Claims 1 or 2~~, wherein the magnetic resonance signals are acquired by way of a receiver antennae system having a spatial sensitivity profile, and successive magnetic resonance images are reconstructed from the respective sets of undersampled magnetic resonance signals on the basis of the sensitivity profile of the receiver antennae.

5. (Currently Amended) A magnetic resonance imaging method as claimed in Claim 1 ~~Claims 1 or 2~~, wherein successive magnetic resonance images are reconstructed from the respective sets of undersampled magnetic resonance signals on the basis of a reduced field of view, where changes in image contents are assumed to take place.

6. (Currently Amended) A magnetic resonance imaging method as claimed in Claim 1 ~~one of Claims 1 to 5~~, wherein an elliptical k-space shutter is applied.

7. (Currently Amended) A magnetic resonance imaging method as claimed in Claim 1 ~~one of Claims 1 to 6~~, wherein navigator-based volume tracking is applied.

8. (Currently Amended) A magnetic resonance imaging method comprising the steps of ~~system arranged to~~

- obtaining a series of subsequent magnetic resonance signals by steady-state free precession imaging,

- applying an eddy-current reduction technique, such as by alternating the sweep directions of sampling in k-space,
- acquir[[e]]ing a set of magnetic resonance signals in an undersampled fashion,
- optionally acquir[[e]]ing the magnetic resonance signals by way of a receiver antennae system having a spatial sensitivity profile,
- optionally acquir[[e]]ing an additional training set of magnetic resonance signals,
- optionally reconstructing a baseline image from the training data and/or undersampled data, or from data aquired separately during time periods with little or no motion,
- optionally identifying a distribution of likelihood of changes in the successive magnetic resonance images from the baseline image and/or the training data, in the space spanned by geometrical space alone or by geometrical space and temporal frequency,
- optionally reconstructing the successive magnetic resonance images from the respective sets of magnetic resonance signals of the dynamic series on the basis of:
  - the identified distribution of likelihood of changes
  - the baseline image,
  - the sensitivity profile of the receiver antennae, and/or
  - a reduced field of view where changes in image contents are assumed to take place.

9. (Currently Amended) A computer program[[me]] product comprising instructions to

- obtain a series of subsequent magnetic resonance signals by steady-state free precession imaging,
- apply an eddy-current reduction technique, such as by alternating the sweep directions of sampling in k-space,
- acquire a set of magnetic resonance signals in an undersampled fashion,
- optionally acquire the magnetic resonance signals by way of a receiver antennae system having a spatial sensitivity profile,
- optionally acquire an additional training set of magnetic resonance signals,

- optionally reconstruct a baseline image from the training data and/or undersampled data, or from data aquired separately during time periods with little or no motion,
- optionally identify a distribution of likelihood of changes in the successive magnetic resonance images from the baseline image and/or the training data, in the space spanned by geometrical space alone or by geometrical space and temporal frequency,
- optionally reconstruct the successive magnetic resonance images from the respective sets of magnetic resonance signals of the dynamic series on the basis of:
  - the identified distribution of likelihood of changes
  - the baseline image,
  - the sensitivity profile of the receiver antennae, and/or
  - a reduced field of view where changes in image contents are assumed to take place.